

Variation of the Altitude of the *Mercurial* Cylinder, which at most is hardly three Inches, may be made as distinguishable, as if it were three Foot, or three Yards, or as much more, as is desired.

The manner hereof is visible enough by *Figure I*: where A B C represents the Tube, which may be either Blunt, or with a Head, as A B C (by which latter shape, more room is allow'd for any remainder of Air, to expand the better.) This is to be filled with Quick-silver, and inverted as commonly; but into a Vessel of Stagnant Mercury, made after the fashion of I K, that is, having its sides about 3 or 4 inches high, and the Cavity of it equally big both above and below; and if it can be (besides that part, which is fill'd by the end of the *Mercurial* Tube, that stands in it) of equal capacity with the hollow of the Cane about B: For then the Quicksilver rising as much in the hollow of I, as it descends at B, the difference of the height in the Receiver I, will be just half the usual difference. And if the receiving Vessel I K have a bigger Cavity, the difference will be less, but if less, the difference will be greater: But, whether the difference be hereby made bigger or less, 'tis no great matter, since by the contrivance of the *Wheel* and *Index* (which is more fully described in the *Preface* to the *Micrography*) the least variation may be made as sensible as is desired, by diminishing the bigness of the Cylinder E, and lengthening the *Index* F G, according to the Proportion requisite.

An Account of Four Suns, which very lately appear'd in France, and of two Raine-bows, unusually posited, seen in the same Kingdom, somewhat longer agoe.

These *Phænomena* are thought worthy to be inserted here, for the Speculation of the Curious in those Kingdoms; as they were publiht in the French *Journal des Scavans*, of May 10. 1666. viz.

The 9th of *April* of this present year, about half an hour past nine, there appear'd three Circles in the Sky. One of them was very great, a little interrupted, and white every where, without
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the mixture of any other colour. It passed through the midst of the Sun's *Disk*, and was parallel to the *Horizon*. Its *Diameter* was above a hundred degrees, and its *Center* not far from the *Zenith*.

The *Second* was much less and defective in some places, having the Colours of a Rainbow, especially in that part, which was within the great Circle. It had the true Sun for its Center.

The *Third* was less, than the first, but greater than the second; it was not entire, but only an Arch or Portion of a Circle, whose Center was far distant from that of the Sun, and whose circumference did, by its middle, join to that of the least Circle, intersecting the greatest Circle by its two extremities. In this Circle were discerned also the Colours of a Rainbow, but they were not so strong, as those of the *Second*.

At the place, where the circumference of this *Third* Circle did close with that of the *Second*, there was a great brightness of Rainbow-Colours, mixt together: And at the two extremities, where this *Second* Circle intersected the *First*, appear'd two *Parhelia's* or Mock-suns; which shone very bright, but not so bright, nor were so well defined, as the true Sun. The False Sun, that was towards the *South*, was bigger, and far more luminous, than that towards the *East*. Besides those two *Parhelia's*, which were on the two sides of the true Sun, in the intersection of the *First* and *Third* Circle, there was also upon the *First* great Circle, a *third* Mock-sun, situated to the *North*, which was less and less bright, than the two others. So that at the same time there were seen *Four* Suns in the Heavens.

Figure II. will illustrate the Position of this *Phænomenon*.

A. The *Zenith* or the Point Vertical of the place of Observation.

R. The true Sun.

SCHN. The great Circle, altogether *White*, almost parallel to the *Horizon*, which pass'd through the true Sun's *Diske*, and upon which were the false Suns.

DEBO. A *Rain-bow* about the Sun, forming an entire Circle, but interrupted in some places.

HDN. A portion of a Circle, that was *Excentrick* to the Sun, and greater than the Circle DEBO, which touch'd DEBO, and was confounded with it in the point D.

HN. The

HN. The two Mock-Suns, in the intersection of the Semicircle HDN, and the Circle SCHN: The midst of which two False-Suns was white and very luminous; and their Extremities towards DI were tinged with the Colours of a Rainbow. The False Sun, mark'd N, was fainter than that, which is mark'd H.

C. The Mock-Sun, all white, and far less shining, than the two others.

I. A space very dark betwixt R. and D.

This Appearance is look't upon as one of the notablest, that can be seen, by reason of the *Excentricity* of the Circle HDN, and because that the *Parhelia*

* were not in the Intersection of the Circle DEBO with the great Circle SCHN, but in that of the Semi-circle HDN.

As for the two odd Rainbows; they appear'd at Chartres the 10. of August, 1665. about half an hour past six in the Evening; and did cross one another almost at right Angles, as may be seen by Fig. IV.

The Rainbow, which was opposite to the Sun, in the usual manner, was more deeply colour'd, than that, which cross'd it; though even the Colours of the first Iris were not so strong, as they are now and then seen at other times.

The greatest height of the stronger Rainbow, was about 45. degrees; the feebler Rainbow lost one of its Legs, by growing fainter, about 20 degrees above the stronger; and the Leg below appear'd continued to the Horizon.

These Rainbows did not *Just* decussate one another at right Angles; there was some 6 or 7 degrees difference. The fainter, seem'd to be a Portion of a great Circle; and the stronger was but a Portion of a small Circle, as usually.

The Sun, at their appearance, was about 6 degrees high above the Horizon, and towards the 17 Azimuth of the West, Northward.

* Those Five Suns, that appear'd the 29 March, A. 1629. at Rome, between 2 or 3 of the Clock, in the afternoon, were thus posited; that the two of them, which were in the intersection of two Circles, appear'd in that of a Circle, which pass'd through the Sun's Diske, with another, that was Concentrick to the Sun: as may be seen in Figure III. borrow'd (for the easier comparing them together) out of Des-Cartes his Meteors, cap. X.

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The Observer, M. *Eftienne*, notes, that, when he made this Observation, the River of *Chartres*, which runs very near from *South* to *North*, was betwixt him and the Rainbow; and that he stood Level with this River, whence he was distant not above 150 paces: which he adds, that the Curious may the better judge of this Observation.

A Relation of an Accident by Thunder and Lightning, at Oxford.

This was imparted by Dr. *Wallis* in a Letter, written at *Oxford*, May 12. 1666. to the *Publisher*, as follows:

I should scarce have given you so soon the trouble of another Letter, were it not for an Accident which hapn'd here May 10. I had that afternoon, about 4 of the clock heard it thunder at some distance. About 5 of the clock the Thunder coming nearer to us, it began to rain, and soon after (the rain withal increasing) the Thunder grew very loud, and frequent, and with long ratling Claps (though not altogether so great, as I have some other times heard:) and the Lightning with flashes very bright (notwithstanding the clear day-light) and very frequent, (when at the fastest, scarce a full minute between one flash and another; many times not so much, but a second flash before the Thunder of the former was heard:) The Thunder for the most part began to be heard about 8 or 10 second minutes after the flash; as I observ'd for a great part of the time by my Minute-Watch: but once or twice I observ'd it to follow (in a manner) immediately upon it, as it were in the same moment; and the lightning extream red and fiery. I do not use to be much apprehensive of Thunder and Lightning, but I was at this time (I know not well, why?) very apprehensive, more than ordinary, of mischief to be done by it, for it seem'd to me to be very low and near us (which made me so particular, as to observe the distance of the flash by the noise) and very frequent, and bright, so that, had it been by night as it was by day, it would have been very terrible. And, though I kept within doars, yet I sensibly discover'd a stinking sulphureous smell in the Air. About 7 of the clock it ended, before which time I had news brought me of a Sad Accident upon the
water

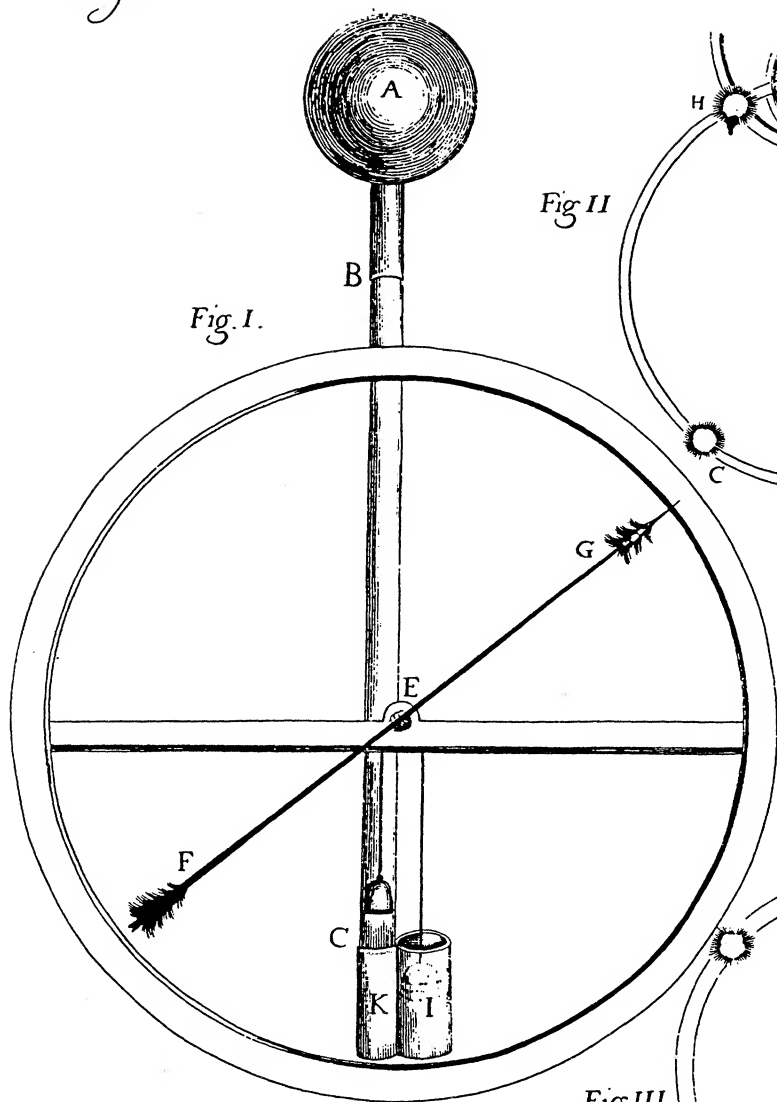


Fig. II.

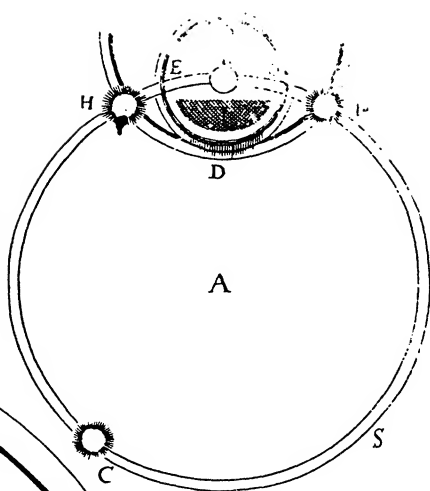


Fig. III.

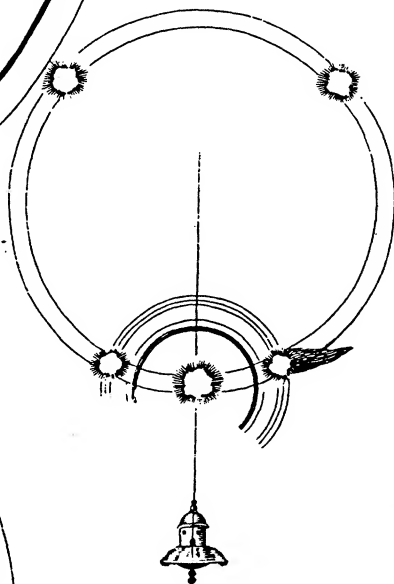


Fig. IV.

